



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
(15-XZ-5881 (MHM 13043US01))

PATENT APPLICATION OF:

Ganin

SERIAL NO.: 09/682,001

FILED: July 6, 2001

FOR: Multiple-Plane Acquisition in
Digital X-Ray Radiography

Examiner: C. Church

Group Art Unit: 2882

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REPLY BRIEF

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Sir:

This Paper replies to the Examiner's Answer mailed August 12, 2003. The present Applicant, Alexander Ganin, respectfully requests that the Board of Patent Appeals and Interferences reverse the final rejection of claims 1-2, 5-7, 9-21, and 23 of the present application.

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I. Khutoryansky et al. Does Not Teach, Nor Suggest, “Acquiring Digital X-Ray Images,” As Recited In Claim 1

The Examiner continues to contend that Khutoryansky et al. is not limited to film based systems.¹ In particular, the Examiner states that “the section of column 1 of Khutoryansky referred to by appellant that mentions film is a discussion of prior art devices and not of patentee’s invention.”² It is true that the Background section of Khutoryansky et al. states, “Linear tomography, where both the X-ray tube and X-ray *film* are constrained to straight-line motion, is perhaps the most common and easiest to practice variant of tomography.”³ Khutoryansky et al., however, does not disclose any type of linear tomography other than conventional film based linear tomography. Khutoryansky et al. simply does not teach, nor suggest digital x-ray. In effect, Khutoryansky et al. defines linear tomography as a system that includes an x-ray tube and x-ray *film*.

The Examiner concludes that because Khutoryansky discusses linear tomography in the Background in this manner, that definition is confined only to the prior art. In fact, the Examiner reasons that because linear tomography was described in the Background as a system using film, Khutoryansky et al. is not limited to film based systems, despite the fact that there is no further discussion with respect to this aspect of linear tomography. While Khutoryansky et al. explicitly discusses “film” based linear tomography, Khutoryansky et al. is silent with respect to digital linear tomography.

¹ See Paper 16 (Examiner’s Answer) at 6.

² *Id.*

³ Khutoryansky et al. at Column 1, lines 26-29 (emphasis added).

Khutoryansky et al. fails to teach or suggest digital x-ray acquisition. There is nothing in Khutoryansky et al. that would lead one to believe that linear tomography means anything other than film based linear tomography. That is, the same term – linear tomography – has the same meaning throughout the patent. Khutoryansky et al. does not attempt to redefine linear tomography after the Background section. Rather, Khutoryansky et al. defines linear tomography in the Background section as a *film*-based system, and there is no reason to believe that this meaning changes merely because the exact same term, i.e., linear tomography, is used within the Summary and Detailed Description of the patent.

As discussed during prior prosecution and in the Applicant's Brief on Appeal, Khutoryansky et al. is directed to a “universal radiographic room that allows an operator to select between conventional radiographic mode and linear tomographic mode.”⁴ Khutoryansky et al. merely provides an apparatus that may perform both of these conventional, film-based imaging methods.

Additionally, the Examiner notes that claim 1 “recites no method steps or other features that limit the claim to digital imaging.”⁵ Whether recitations in a preamble will be construed as limitations depends on the claim.⁶ The general rule is that preambles are not limiting if they merely state an intended use or purpose for the claimed structure.⁷ On the other hand, a preamble recitation will be construed as a limitation if it breathes life,

⁴ Khutoryansky et al. at Abstract.

⁵ See Paper 16 at 6.

⁶ See *Bell Communications Research, Inc. v. Vitalink Comm.*, 55 F.3d 615, 620 (Fed. Cir. 1995) (citing *In re Stencil*, 828 F.2d 751, 754 (Fed. Cir. 1987)).

⁷ See, e.g., *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989).

meaning, and vitality into the claim.⁸ Claim 1 of the present application, does not merely state an intended use or purpose. Instead, the preamble of claim 1 breathes meaning into the claim by limiting it to digital x-ray acquisition. “Acquiring digital x-ray images,” as recited in claim 1, gives meaning to the claim and properly defines the invention. The Applicants note, in passing, that independent claim 10 of the present application recites “acquiring a series of images with a digital x-ray detector” within the body of the claim.⁹

II. Khutoryansky et al. Does Not Teach, Nor Suggest,” Moving Said Detector And X-Ray Tube To Said Second Detector And X-Ray Tube Preparation Positions,” As Recited In Claim 1

The Examiner continues to ignore the fact that Khutoryansky clearly states the following:

Once the predetermined exposure time has been reached, implying that the tube and bucky travel have reached the end of the selected sweep angle, x-ray exposure is terminated. *After each tomographic exposure, the system returns to the CENTER position.*¹⁰

Khutoryansky could not be any more clear. There simply is no denying the fact that the system of Khutoryansky et al. returns to the CENTER position after *each* tomographic exposure. Khutoryansky et al. does not wait at one end of its travel in preparation for a subsequent exposure. Rather, it always returns to CENTER after each tomographic exposure. Thus, Khutoryansky et al. teaches away from “positioning said detector and x-

⁸ *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 896 (Fed. Cir. 1984) (stating: “Those limitations appear in the preamble, but are necessary to give meaning to the claim and properly define the invention.”); *see also, Porter v. Farmers Supply Serv., Inc.*, 790 F.2d 882, 885 (Fed. Cir. 1986); *Kropa v. Robie*, 187 F.2d 150,152 (1951).

⁹ See Paper 15 (Brief on Appeal) at 26.

¹⁰ Khutoryansky et al. at Column 8, lines 7-11 (emphasis added).

ray tube at said second detector and x-ray tube preparation positions, respectively, *after* said acquiring a first x-ray image step,” as recited in claim 1 of the present application.

The Examiner cites Khutoryansky et al. at column 3, lines 53-57 in support of multiple preparation positions. However, this citation only discusses where a sweep begins and ends, but not multiple preparation positions.

In tomographic mode of operation, system component positions are monitored through the tomo control module 217, and the x-ray generator control 218 controls the points during the tomographic sweep at which x-ray exposure begins and ends.¹¹

As discussed above, however, Khutoryansky et al clearly states that “[a]fter each tomographic exposure, the system returns to the CENTER position.”¹² Thus, unlike the present invention, Khutoryansky et al. does not wait at the end of the sweep for a subsequent imaging sweep. That is, the “end” of Khutoryansky et al.’s imaging sweep is not a preparation position because it always returns to the CENTER position.

The Examiner also asserts that the “positioning” limitation of claim 1 is “an inadvertent repeat of the previous step.”¹³ The Applicant is confused by this assertion for two reasons. First, the Examiner indicated that this added limitation “raised new issues that would require further consideration and/or search.”¹⁴ If this added limitation merely repeats previous steps, it is difficult to understand how it raises “new issues” that require “further consideration and/or search.”

Second, the Examiner stated the following:

¹¹ Khutoryansky at Column 3, lines 54-59.

¹² Khutoryansky et al. at Column 8, lines 10-11 (emphasis added).

¹³ Paper 16 at 5.

¹⁴ See Paper 13 (Advisory Action).

Although appellant observes that Khutoryansky moves his source/detector assembly to the center position after a scan, *this has no bearing whatever on patentability of the claims since they do not recite where the source/detector are placed after a scan, ie a storage position*, but only that at the beginning of a scan they are moved to the prep position....¹⁵

In response to the Examiner's suggestion, the Applicant amended claim 1 to include the limitation "positioning said detector and x-ray tube at said second detector and x-ray tube preparation positions, respectively, *after* said acquiring a first x-ray image step." Clearly, this limitation recites "where the source/detector are placed *after* a scan."

Additionally, the Examiner noted, "[n]owhere does Khutoryansky state that his scans begin at the center of the scan range as is absurdly implied by the appellant."¹⁶ The Applicants are not necessarily implying that Khutoryansky's scans begin at the center of the scan range. The Applicants respectfully submit, however, that "*after each tomographic exposure, the system returns to the CENTER position*," as Khutoryansky et al. clearly states.¹⁷ Thus, after each scan, the system returns to the CENTER position, as is clearly and unambiguously taught in Khutoryansky et al.

Further, the Applicant does not necessarily assert that Khutoryansky's HOME position is only the head end of the table. Khutoryansky et al. states the following:

HOME 803 – moves the tubercrane to the HOME (Head End, for example) position and positions the x-ray tube and buck for the beginning of a linear tomographic sweep.¹⁸

¹⁵ See Paper 11 (2/26/03 Office Action) at 3, and Paper 16 at 7 (emphasis added).

¹⁶ Paper 16 at 7.

¹⁷ Khutoryansky et al. at Column 8, lines 7-11.

¹⁸ Khutoryansky et al. at Column 6, lines 28-31.

While the HOME position may, for example, be at the Head End, the HOME position does not change. Thus, even assuming that the HOME position is at the Foot End, the HOME position does not change between Head End and Foot End. The fact that the position is a HOME position suggests that the position remains constant. Khutoryansky et al. does not teach, nor suggest, a HOME position that changes. Thus, the Applicant respectfully submits that Khutoryansky et al. does not teach, nor suggest, “moving said detector and x-ray tube to said second detector and x-ray tube preparation positions, respectively,” nor “positioning said detector and x-ray tube at said second detector and x-ray tube preparation positions, respectively, after said acquiring a first x-ray image step,” as recited in claim 1 of the present application.

III. The Auto Tomographic Mode Of Khutoryansky et al. Relates To Setup For A Scan

The Examiner contends that the Auto Tomo mode of Khutoryansky et al. is related to acquiring multiple slice images. However, the Applicant respectfully submits that the Auto Tomo mode is related to the set up of parameters for a single imaging sweep. The Examiner cited Khutoryansky et al. column 8, lines 19-22 and column 5, lines 52-62 to support his theory.¹⁹ Khutoryansky at column 8, lines 19-22 states:

Auto tomographic mode may only be selected from the control panel. The operator must also select number of steps (1 through 10), direction of fulcrum adjustment (UP or DOWN) and initial fulcrum height.

The above passage, however, does not teach, nor suggest, multiple imaging sweeps. Similarly, there is nothing in Khutoryansky et al. column 5, lines 52-62 that teaches or

¹⁹ Paper 16 at 6.

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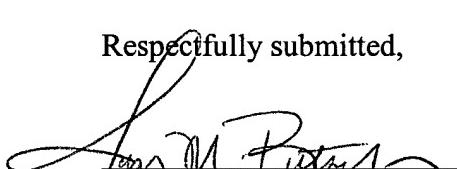
suggests multiple imaging sweeps. That passage relates to parameters for a single sweep set up, such as SPEED, FULCRUM (i.e., an operator may adjust the fulcrum level in 1 mm increments, but there is nothing in Khutoryansky et al. to suggest that these settings are stored for multiple imaging sweeps), and the like. There is nothing in the passages cited by the Examiner to indicate storage of parameters for multiple imaging sweeps or slices. Rather, the Auto TOMO mode is a way to automatically select the parameters for a single imaging sweep (instead of manually adjusting parameters such as Fulcrum height through the sweep, the Speed of the sweep, etc.). The Applicants submit that Khutoryansky et al.'s Auto TOMO mode is a way to automatically select an imaging sweep having a plurality of characteristics (such as a particular Fulcrum height, sweep angle, speed, etc.), as an alternative to manually selecting and entering each and every one of these parameters. However, Khutoryansky et al. does not teach, nor suggest, a system that stores parameters for multiple slice images.

CONCLUSION

As discussed previously, the Applicant respectfully submits that the pending claims are allowable in all respects. Therefore, the Board is respectfully requested to reverse the rejections of pending claims 1-2, 5-7, 9-21 and 23.

Respectfully submitted,

Dated: September 9, 2003


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